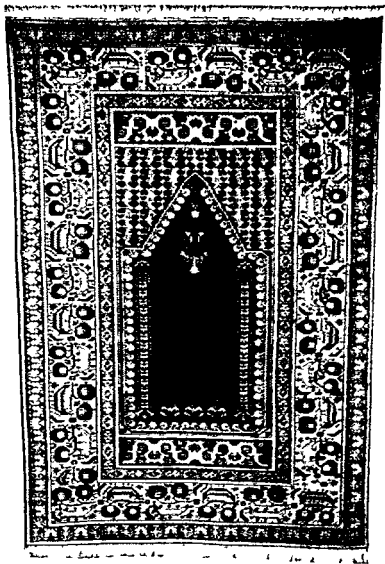


# ART WEAVING



GHIOIDES PRAYER RUG

# ART WEAVING

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FRIEDA KEAN

ASSISTANT DIRECTOR OF VOCATIONAL ACTIVITIES  
DEPARTMENT OF EDUCATION, NEW YORK CITY  
INSTRUCTOR IN ART WEAVING AT THE  
COLLEGE OF THE CITY OF NEW YORK

*Drawings by T L Jones*

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## FOREWORD

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THE purpose of this book is to provide a theoretical and cultural background for a practical course in hand-weaving. The approach is elementary, but students may find this brief introduction helpful in charting a course of more intensive study.

As a subject in the school curriculum, Art Weaving offers a unique combination of educational values. These may be conveniently divided into the aesthetic and the utilitarian. In the first category would be grouped such objectives as (1) appreciation of masterpieces of the textile art, (2) study of the principles of design and color harmony, and (3) encouragement of the creative impulse. The utilitarian aspect would include (1) principles of home decoration and furnishing, (2) resources for the profitable and enjoyable use of leisure, (3) skill in the manipulation of textile materials of various kinds such as wool, silk, linen, and cotton, and a knowledge of their origin, manufacture and use, (4) training in economic purchasing, (5) development of the qualities inherent in fine workmanship, (6) training in technical skills of economic value, (7) training in observation and scientific judgment, and (8) development of the finer coordinations of eye and hand.

The social and ethical implications of these objectives are too obvious to require elaboration.

In the "activity" or "experience" program, in the individualization of instruction, in courses of exploration and adjustment, and similar movements on the "educational frontier," Art Weaving should occupy a sector of increasing importance.

The rapidly growing enrollment in the subject in the junior and senior high schools is evidence of its varied appeal and of the enthusiasm of its teachers.

To them, and to many other associates, the author wishes to acknowledge her indebtedness for invaluable interest and encouragement, and for generous help in the preparation of the manuscript.

F. K.

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HARDANGER work, as the name implies, originated in the small town of Hardanger, located on the Hardanger Fjord, an inlet of the west coast of Norway. The vikings brought with them to Norway some Saracens who produced a type of drawn work which led to the development of the first pieces of hardanger. It may be defined as a kind of drawn work, combining weaving with embroidery. Since it is an open mesh, it may be considered also the beginning of lace work. It was used at first to beautify costumes. The design was simple and geometric, triangles, squares, and zig-zag lines being used.

The fame of this Norwegian work spread to neighboring countries. In Sweden its development was marked by efforts to enhance its beauty by adding different stitches. Altar cloths and stoles were thus embroidered. After the Thirty Years' War (1618-1648) many Swedish priests and nuns departed for Italy and Spain, taking numerous specimens of hardanger with them. The nuns began to teach young women this art. The design became more artistic, and floral and conventional patterns were added.

At the present time every European country produces excellent examples of hardanger work. It is

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the next unit one must skip 4 threads and begin in the mesh between the 4th and 5th threads (*Fig 4*) If squares are made, for example, a square of 4 units, 4 threads must be skipped between the 1st and 2nd units. The corner unit is formed by making the 5th thread of the 4th unit and the 1st thread of the 1st corner unit meet in the same mesh (*Fig 6*)

### 5 DIAGONAL KLOSTER BLOCKS

In the diagonal Kloster block one must be very careful in turning the corner the 5th stitch of the vertical block and the 1st stitch of the horizontal block following the former must meet in the same mesh (*Fig 5*)

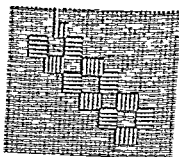


Figure 5

### 6 CUTTING THE THREADS

Only threads covered or protected by the Kloster block may be cut. The 4 threads that were skipped must never be cut, since this would mar the appearance of the entire work (*Fig 6*)

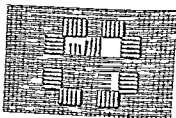


Figure 6

### 7 RUSSIAN OVERCAST BAR

A square of 4 Kloster units is made. *Figure 6* shows the setting of the square. Notice that the vertical

used for beautifying bedspreads, tablecloths, scarfs, doilies, centerpieces, curtains, cushions, etc. Scandinavian national costumes are still trimmed with hardanger.

### MATERIALS

The cloth, or base material, used in hardanger work must be a plain 'linen weave,' warp and woof of the same quality and weight. Coarse linen, hardanger cloth woven of cotton, linen, wool, or silk, or scrim may be used. The design is worked with pearl thread, linen, silk, or wool. A tapestry needle #18 is used for scrim, for finer materials #14 or #12 with a dull point.

### TECHNIQUE

#### I PLAIN HEMSTITCH

(a) Starting from the edge of the material, count 40 threads, pull out the 41st, 42nd, and 43rd threads. If a scarf or a centerpiece is to be made, do likewise on all four sides of the material.

(b) Count from the edge the first 4 threads, crease the material between the 4th and 5th threads on all four sides. Now 36 threads are left, count 18 threads, bend and crease the material again, thus doubling it and leaving open the space where the 3 threads were pulled.

(c) Baste all four sides in the same way. Since 3 threads were pulled on each side, you will notice an empty space separating each corner from the material.

(d) Thread your needle

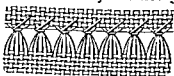


Figure 1

with the thread you pulled out of the material and fasten it to the 1st thread next to the empty space from left to right. (*Fig. 1*)

(e) Pick up a unit of 3 (or 4 or 5) threads; insert the needle underneath the 3rd thread toward the 1st thread, encircle the unit (returning to the 3rd thread) and fasten the unit with one stitch to the doubled material; repeat. Be especially careful in working the corners because there the number of threads is doubled; one must, therefore, pick up a unit of 6 threads, 3 above and 3 underneath the material.

## 2. DOUBLE HEMSTITCH

Work in the same way as plain hemstitch, but with this difference: in the plain hemstitch only one side near the doubled edge is worked, while in the double hemstitch both sides are stitched the same way. (*Fig. 2*)

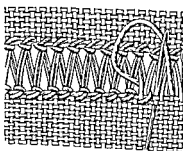


Figure 2

## 3. KLOSTER BAR

A Kloster bar is made by working a plain satin stitch over 4 threads. (*Fig. 3*)

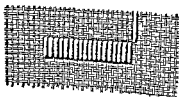


Figure 3

## 4. KLOSTER BLOCKS

Kloster blocks are made in units of 5 stitches over 4 threads. In order to start

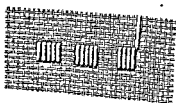


Figure 4

edges are bordered by squares of horizontal stitches, and the horizontal edges by squares of vertical stitches. Cut the 4 threads close to the Kloster units on each side, skipping the 4 threads that have been skipped between units. *Caution:* One must be very careful with the cutting and counting of threads. Pull the cut threads out and start to work the Russian bar over the 4 threads that have been skipped by the Kloster units. Wind your threads 12 times around the 4 threads, forming round bars. (Fig. 7)

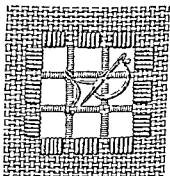


Figure 7

### 8 SWEDISH WEAVING

Work a square of Kloster blocks, cut as in Figure 6. The 4 threads that are left are worked in Swedish weaving by inserting the threaded needle between the 4 threads, separating them into 2 and 2.

From the center, encircle the 2 threads to the right; then, coming back to the center, encircle the 2 threads to the left. By repeating this process alternately 14 times you fill the bar and are ready for the next one. (Fig. 8)

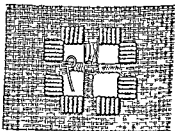


Figure 8

## 9 LOOP STITCH

Make a square of Kloster units, cut and pull the threads.

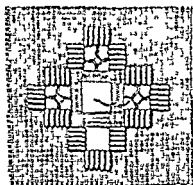


Figure 9

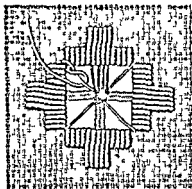


Figure 10

The loop stitch is worked by inserting the threaded needle into the 3rd stitch or middle of each Kloster block (Fig. 9)

## 10 FLAME STITCH

The flame stitch is made either by working 4 straight stitches over 4 threads, 4 over 8 threads and 4 over 12 threads, 4 over 8 threads and again 4 over 4 threads, or by making the first stitch over 2 threads, the next over 3 threads, the next over 4, and the next over 5 threads, then returning gradually to 2 threads

The first type is worked for a design of wheels with bars, the second for all sorts of jours (Figs 10 and 11)

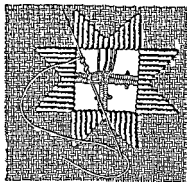


Figure 11

## II. RUSSIAN JOUR

Make one row of flame stitches; skip 10 threads and work another row of flame stitches facing the first row. Cut the 10 threads at the left and right, and pull them out.



Figure 12



Figure 13

To work the jour, insert and fasten the threaded needle in the 5th or 6th thread at the left; then skipping a unit of 6 threads of the pulled-out section, pick up the 4th, 5th, and 6th threads and twist them over the unit of the 1st, 2nd, and 3rd threads. (*Fig. 12*)

Another design with the jour is the bar with the wheel or circle. (*Fig. 13*)

---

TEXTILE fibers of industrial and commercial importance are classified according to their origin as vegetable, animal, or mineral. The vegetable fibers are cotton, linen, hemp, jute, ramie grasses, wood pulp, cotton wool, vegetable silk, etc. The animal fibers are wool, hair, and silk. The mineral fibers include gold thread, silver thread, slag wool, tinsel, spun glass, and asbestos.

### COTTON

The most important vegetable fiber is cotton.

Cotton was made into cloth in India and Egypt as early as 600 B C. It was also known to the South American Indians. Samples of good cotton cloth have been found in their most ancient tombs. Columbus found the Indians of the West Indies wearing cotton materials. Cotton was known to the Greeks as "tree wool." It was brought to Spain from Arabia by the Moors. From Spain it spread over the rest of Europe. There was some manufacture of cotton in Northern Italy, the Netherlands, and Flanders in the sixteenth century. Some of the Flemish cotton manufacturers were involved in religious troubles and had to flee to London, thus introducing the industry to England.

By the end of the seventeenth century the cotton-weaving industry was well established in the homes of the people of Manchester.

At the time of the American Revolution England had become a strong competitor for the world's textile trade. It was partly because of England's policy of forcing the American colonies to buy her manufactured goods that the War of Independence broke out. In 1656 the English government prohibited the American colonies from importing raw materials for the manufacture of cotton goods. During the last one hundred years America has forged to the front as cotton producer as well as cotton manufacturer.

The cotton fiber comes from the seeds of the cotton plant. It varies in length from one half to three inches. When examined under the microscope the single fiber appears as flat as a ribbon. The twisting of several fibers into one continuous thread is called spinning.

The chemical substance of the fiber is pure cellulose, which is true of all vegetable fibers. It is therefore easy by chemical testing to distinguish cotton, wool, and silk. All vegetable fibers are inflammable. Cotton belongs to the mallow family. The finest qualities of cotton are Sea Island cotton (pure white), Egyptian cotton (brown), Peruvian cotton, and American Upland cotton.

America produces two thirds of the world output. Russia holds second place and Brazil third. Egypt produces a fine type of long-fibered cotton, but not enough for competition in the world market.





U S Department of Agr culture

# Cotton

A. Plant

B Flowers and Boll before Opening

C Boll (cotton attached to seeds)

D Seeds (actual size)

## MERCERIZED COTTON

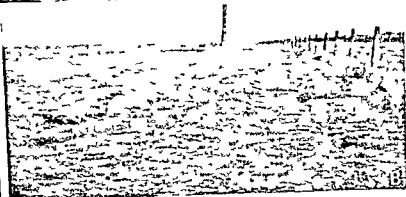
Since the cotton fiber is not very strong, attempts were made to improve its strength. In 1844 John Mercer, an English chemist, upon examining some cotton material that had fallen accidentally into a vat filled with caustic soda, noticed that changes had taken place within the fiber. The cotton fiber became round, had a silky sheen, and was much stronger. The pure cellulose had changed to hydrocellulose. Mercer improved the process of chemically strengthening the cotton fiber.

The method of mercerization in use at the present time is as follows: (1) The yarn or cloth is given a thorough washing with soap and water, rinsed in clean water, and passed between rollers. (2) The material is then placed for about fifteen minutes in a solution of caustic soda at a temperature of 65° Fahrenheit. (3) Removed, it is stretched, rinsed in water and acetic acid, and finally pressed through hot rollers, which gives the material the rustle or scroop of genuine silk.

Mercerized cotton absorbs dyestuff more readily than the natural product.

## LINEN

Linen is obtained from the flax plant. Flax has been cultivated in Asia Minor for more than 4,000 years. Remnants of linen fabric have been discovered in caves of the Stone Age (before the discovery and use of metal). Egypt and China have been long famous for their fine linen. Egypt was at one time



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- A Pulling Flax by Hand
- B Fiber Flax Dew Retting
- C Tanks Used in Retting Flax

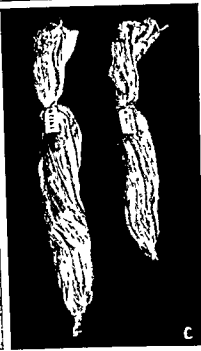
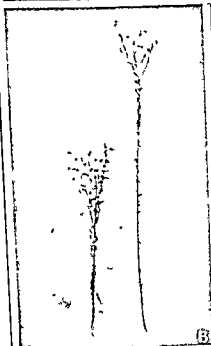
the center of the linen market and the greatest linen-producing country in the world

In the thirteenth century European countries started the cultivation of flax. At the present time Russia leads in the production of linen. Fine linens are produced in Belgium, Ireland, France, Germany, and Austria, Italy, Spain, and Russia are noted for the more durable quality of their products.

The flax fiber is slender, straight, tube-like, and between twelve and thirty inches in length. It is found in a thin layer running the length of the stalk of the plant immediately under the bark. The fiber, like that of cotton, is pure cellulose and inflammable. The flax plant must be pulled by hand when not quite ripe. The pulling is necessary in order to secure the full length of the thread. The tube like threads taper to a point at both ends. Long, tapering threads are necessary for even and smooth spinning.

After the plants have been dried, they are threshed by a process called "rippling." Tied up in bundles, they go through another process of soaking called "retting." The retting is necessary to soften the bark and facilitate its removal without injuring the fiber. There are several types of retting: dew retting, the flax bundles being left for several weeks on the grass until they start to rot, pool retting, where the flax is put into pools until the rotting begins, and retting in running water. Chemical retting has not proved satisfactory. The finest retting is done in the River Lys in Belgium.

Other processes done by hand are the breaking,



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- A Scutching Flax
- B Flax Plants (mounted)
- C Flax Fiber as It Goes to Market

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In the thirteenth century European countries started the cultivation of flax. At the present time Russia leads in the production of linen. Fine linens are produced in Belgium, Ireland, France, Germany, and Austria; Italy, Spain, and Russia are noted for the more durable quality of their products.

The flax fiber is slender, straight, tube-like, and between twelve and thirty inches in length. It is found in a thin layer running the length of the stalk of the plant immediately under the bark. The fiber, like that of cotton, is pure cellulose and inflammable. The flax plant must be pulled by hand when not quite ripe. The pulling is necessary in order to secure the full length of the thread. The tube-like threads taper to a point at both ends. Long, tapering threads are necessary for even and smooth spinning.

After the plants have been dried, they are threshed by a process called "rippling." Tied up in bundles, they go through another process of soaking called "retting." The retting is necessary to soften the bark and facilitate its removal without injuring the fiber. There are several types of retting: dew retting, the flax bundles being left for several weeks on the grass until they start to rot; pool retting, where the flax is put into pools until the rotting begins; and retting in running water. Chemical retting has not proved satisfactory. The finest retting is done in the River Lys in Belgium.

Other processes done by hand are the breaking,



U S Department of Agriculture

(Above) Sheep Grazing in Arizona  
(Below) Shearing Sheep

scutching, and hackling of the flax before the fiber can be spun into thread. Scutching and hackling are a sort of combing process which stretches the fibers and makes them lie parallel to each other.

Since linen is expensive, chiefly because of the labor involved, it is often adulterated with fine qualities of cotton, that is, linen cloth is adulterated with cotton thread.

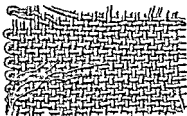
## WOOL

Wool is an animal fiber. The sheep is the most important animal producing it. Other animal fibers used for textiles are goat's hair and camel's hair. Sheep's wool differs in two important respects from all other hairy fibers: it is kinky and has scales. The kinkiness provides greater elasticity and makes for finer and easier spinning, the scales make for greater compactness.

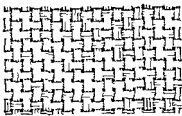
The quality of the wool depends upon the breed of the sheep, their care, climate, and pasturage. Wool produced in a high, dry climate is stiff, rather wiry, and has a silky gloss. This type of wool is used for rug weaving. Wool produced in a moist climate is soft and lacking in sheen, and is used in clothing materials. The more kinky the wool, the longer the fiber and the finer the quality.

There are many varieties of wool: (1) lamb's wool, taken from the back of the lamb before it is a year old, (2) hogget or hog wool, taken from the back of a sheep one year old and never clipped before, (3) wether wool, taken from sheep shorn for the second

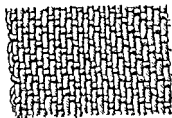




Plain or Tabby Weave



Basket Weave



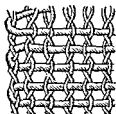
Twill Weave



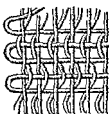
Satin Weave



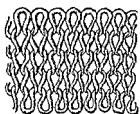
Sateen Weave



Gauze Weave



Leno Weave

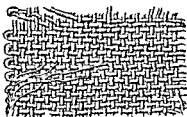


Plain Knitting Stitch

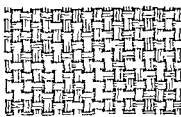
Figure 14 Some Types of Weaves

time; and (4) pulled wool, taken from slaughtered animals. The first three types have greater elasticity, a better sheen, and are, as called in the rug industry, more "alive." The quality of wool varies also with the health and cleanliness of the animal, its age, and the part of the body from which the wool is taken. The wool may be washed either while on the back of the animal, or after the fleece is removed. The shearing is usually done in the spring of the year.

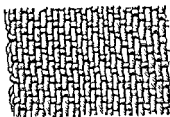
The important steps in the manufacturing process are the following: (1) Sorting the wool, after the fleeces have been stored in bundles. Since every fleece bears several types of wool, the bundles are opened and the wool is sorted according to the length of fiber and the part of the body of the animal from which it was taken. The finest and longest fibers come from the sides of the sheep. (2) Scouring. After it is sorted, the wool is washed with caustic potash soap to remove all foreign matter, and is then well rinsed and dried. (3) Drying. Special drying machines are used for this purpose. Some moisture must be left in the wool to prevent its becoming too brittle. (4) Burr picking. The burrs and other impurities which were not removed by the washing and sorting are extracted by passing the wool through a special combing machine. Sand and dust also are blown out by this process. (5) Carbonizing. This is a chemical process by which the vegetable matter is eliminated. The wool is put into a vat filled with a strong acid (hydrochloric or sulphuric) for a period of about twelve hours during which it must be stirred several times. It is



Plain or Tabby Weave



Basket Weave



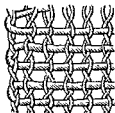
Twill Weave



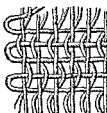
Satin Weave



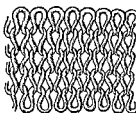
Sateen Weave



Gauze Weave



Leno Weave



Plain Knitting Stitch

Figure 14 Some Types of Weaves

then taken out, rinsed, and dried at a temperature of 160° Fahrenheit (6) Oiling The wool, when taken out of the drying machine, looks like a sheet of cotton batting It is now ready for a sprinkling with olive oil, lard, or glycerine This process prevents the fibers from becoming too brittle for spinning To give the oil a chance to penetrate, the wool is made into bales and left thus for two weeks It is then ready for carding and spinning (7) Carding This is a sort of combing which disentangles and straightens the fibers before spinning The band or rope formed by carding is called a "sliver" The sliver is then drawn out to the desired thickness and spun into yarn (8) Spinning is the process of twisting the fibers into one continuous thread

The finished textiles are classified as woolens or worsteds Woolens consist of yarns spun of the shorter fibers, which may also be mixed before being spun Worsteds consist of the longer fibers made to lie parallel to each other

Mohair is the yarn produced from goat's hair The finest and most lustrous is that of the Angora goat Mohair is used for the manufacture of fine plushes, velvets, and materials for upholstery, tapestry, and artificial furs

## SILK

The silk fiber, strongest and finest of all textile fibers, is an animal fiber produced from the cocoon of the silk moth, popularly known as the silkworm The silk moth passes through various stages before it is



Keystone View Co. Inc. of N. Y.

- A. Tableful of Silkworms in Final Stage before Spinning  
 B. Branch of *Cocoon* Reared in Tudor Castle (note gossamer (1) tea (2))  
 C. Silk — Cocoons in Warehouse in Italy Ready for Silk to be Rolled on Spools  
 D. Bales of Raw Silk from China and Japan in a Connecticut Silk Mill

full grown the egg, the caterpillar (the caterpillar spins itself into a cocoon), and the full-grown moth. The fiber, its substance secreted in the caterpillar's body, is one continuous thread of about four thousand yards. The domesticated silkworm is fed on the leaves of the white mulberry tree and spins a cocoon of a creamy color.

In order to remove the silk, the cocoons are dipped for a few minutes in hot water or placed in a hot oven. The former process is more common. The heat softens the silk and loosens the fiber so that the reeling of the continuous thread may begin. The floss, or silk, is carded and spun. The silk waste is used in the preparation of "imitation silk."

Although the silk fiber loses a great deal of its strength in the process of manufacture, it remains stronger than any other. It consists of two parts, the inner substance called "fibroin" and the outer waxy substance called "sericin." The silk fiber is very elastic, durable, has a fine luster, and absorbs the most delicate shades of any dye.

The important steps in the manufacture of silk are (1) Degumming the raw silk. This is done either by placing the raw silk in vats and leaving it in hot, damp rooms in order to cause fermentation, or by placing bags filled with the silk in boiling water for a short time. The former process is called "schappe", the latter is called the boiling process. (2) Conditioning. This is a process of washing and drying the raw silk. (3) Opening or loosening process. The silk is now ready for a pounding and batting to

remove all foreign substances. (4) Combing. The fibers are straightened and the long fibers separated from the short ones. (5) Spinning. The silk is drawn through gill boxes and drawing frames, a process known as "slubbing," after which the fibers are combined by "roving." The spinning of silk consists of either twisting several fibers into a thread, or twisting twisted fibers into one thread, or twisting some loose fibers with a twisted fiber, depending upon the weave desired.

#### IMITATIONS OF SILK

Of the various silk substitutes on the market, mercerized cotton is the oldest. Next came chardonnet, an artificial silk made of cellulose, which is produced by dissolving cotton waste in a solution of alcohol and ether. Europe is still using chardonnet, but the United States prefers rayon (cotton linters or wood pulp chemically treated) because it is easier and cheaper to manufacture.

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THE ARTISTIC value of Oriental rugs has been recognized for centuries throughout the world. Just when and where the first Oriental rug was produced is not certain, but that the weaving of rugs is of very ancient origin we may gather from references to the art in the Old Testament. Moses, we are told, had curtains of goats' hair made to cover the tabernacle and a hanging for the door of the tent in blue, purple, and scarlet. Too, there is the legend of King Solomon's huge carpet, with its background of green silk interwoven with pure gold (note the Egyptian influence in the color scheme), on which he entertained the princes of the beasts, birds, and demons, a carpet said to have covered an area of sixty square miles.

We know that nomads in Central Asia as well as the inhabitants of Egypt (about 1300 B C ) used such rugs to beautify their tents and to adorn their temples and their tombs. Rugs were made by Oriental peoples living in cities as well as by the nomads who wandered from place to place. It was the nomads who spread the art of Oriental rug weaving, but their art was influenced to a great extent by their contacts with foreign peoples. The design, crude and simple to begin with, gradually developed into something artistic

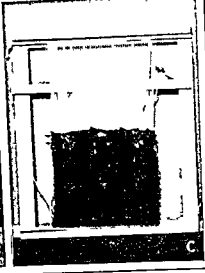




A



B



C

- A. An Art Weaving Class (Courtesy of All the Children Annual Report of Superintendent of Schools New York City)
- B. Modern Class Loom (Courtesy Paternayan Brothers Inc)
- C. Hand Loom with Half woven Oriental Rug (Courtesy Paternayan Brothers Inc)

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ing gifts of exquisite Oriental rugs, brocades, and velvets with his ambassadors to European countries. Attempts have been made to reproduce by machine fine specimens of Oriental rugs, but though the design and color combination may be copied, no machine as yet can reproduce the technique of the Oriental knot.

The emperors of India followed the example set by the Persians. Under Akbar (1556-1605) a famous imperial factory supplied not only Indian princes but also European rulers with fine silk rugs of animal design, called hunting rugs.

European rulers imported Persian and Indian weavers to teach the art to their subjects. The Moors introduced rug weaving to Spain. From European Turkey it spread to all the Balkan states.

### DESIGN

The beauty of an Oriental rug depends upon its design and its color combination. The nomads were originally nature worshippers, and being much in the open, they tried to imitate nature in their design. It was difficult, however, to produce curved lines on a loom, for the warp and weft threads run at straight angles. This forced them to use geometric patterns and we claim for the weavers' art the origin of that style of pattern.

Religion had a great influence upon the art of primitive as well as cultured peoples. We find Oriental rugs in the old Egyptian temples and rug designs in the decoration of the walls of the Kaaba (or "House of the Sacred Black Stone," a building sacred to the

and beautiful, depending upon the nomads' surroundings, their comfort, and their leisure

Gorgeous rugs were made in Mesopotamia, between the Euphrates and Tigris rivers. When Cyrus conquered that part of the country, annexing it to Persia (539 B C), he saw and admired those velvety fabrics for the first time. He accorded special privileges to the weavers and encouraged them in their work. The Greeks too, by the way, have given us the legend of Penelope, who kept weaving a beautiful rug for ten years while waiting for the return of her husband, Odysseus. She promised to marry one of her many suitors by the time the rug was finished if her husband had not returned, but, never intending to keep the promise because of her love for Odysseus, she undid each night most of the work accomplished during the day.

Today Persia takes first place in Oriental rug weaving. The height of Persian rug weaving was reached during the sixteenth century under Shah Abbas. The country was rich and at peace, with more leisure for the development of art. Special schools of design were erected and artists and artisans produced hunting rugs, garden rugs, and prayer rugs. The famous Ardebil rug, now at the Victoria and Albert Museum in London, belongs to that period. The Persians also produced a new type of tapestry with a flat woven background of gold or silver thread and a floral and animal design of fine silk or very fine wool in a pile weave. These hangings were not only beautiful but also very costly. Shah Abbas was accustomed to send-

ing gifts of exquisite Oriental rugs, brocades, and velvets with his ambassadors to European countries. Attempts have been made to reproduce by machine fine specimens of Oriental rugs, but though the design and color combination may be copied, no machine as yet can reproduce the technique of the Oriental knot.

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Mohammedans, which stands in the courtyard of the mosque at Mecca) We find similar prayer rugs among the Buddhists, the Brahmanists, and the various sects of Mohammedanism We find them also as altar cloths and canopies in the cathedrals of the Greek Church These rugs all show the symbolism peculiar to the beliefs of the people who produce them Chinese rugs of the Sung dynasty (960-1280) show the dragon in the water, the dragon among flowers, the dragon on a circle, the turtle as a symbol for permanency, the lotus flower for longevity, fishes among water lilies for luck The swastika, known as a symbol of luck to Chinese and Indians, is also used in Turkish, Caucasian, and Turkoman rugs The Greek meander (a zigzag motif), first found in old Chinese patterns, stands for continuous luck We also find spirals representing thunder, curved lines for water, hook designs for fire symbols, peach blossoms for the nucleus of life, etc Special designs showing Buddhist influence in Indian and Chinese rugs are the dog of Buddha (an animal with the body of a lion and the head of a biting dog supposed to be guarding the sacred buildings of Buddha), the flaming wheel of the law, the baldachin (canopy), and the Chinese knot

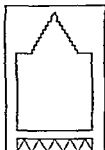
Mohammedanism contributed more than any other religion to the design of Oriental rugs The Mohammedans are divided into two main sects The Sunnites the more conservative sect, believe that no image of any living being (human or animal) should be reproduced in any design, for they would be asked in the hereafter to give a soul to the body they had

created They, therefore, produce geometric or floral patterns To this sect belong the Caucasians, Turks, and Turkomans The Shutes, the more liberal sect, reproduce all sorts of hunting and garden scenes Both sects, however, use the crescent, the comb, the tree of life, and the six-pointed and eight-pointed star and flowers Every prayer rug has its prayer arch, curved as in Persian and Indian, or angular as in Turkish, Turkoman, and Caucasian rugs Each has the prayer niche with a triangle showing where the small cushion filled with "Meccan earth" is to be placed and where the head is to rest while in prayer

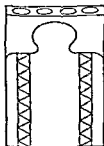
Mohammedans carry their small three by-five rugs as prayer rugs with them Wherever they are when they hear the sound of the gong for prayer, they spread down their rugs and kneel with their heads toward Mecca to pray These rugs are known by their special design One end shows the prayer niche The prayer niche is different for each type of rug

The origin and early development of design is lost in the dawn of history The earliest historic ornament belongs to a civilization already well advanced The vast hoard of designs of all ages is almost incomprehensible until we realize that each period took the decorative ideas it inherited and added a new form and development of its own In this way many rug patterns have departed so far from the meaning of the original design that even the weavers themselves fail to recognize them

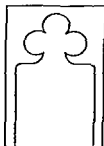
Among the oldest motifs is the "zigzag," found in Egyptian basketry and rug making where it represents



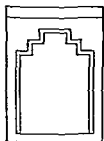
Ghordes (Turkish)



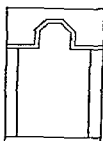
Antique Turkish



Persian



Daghestan (Caucasian)



Turkoman

Figure 15 Prayer Rugs



the splashing of the waters of the Nile. These water motifs were finally adopted by the Chinese, Hindus, and Persians. Another very primitive motif is the swastika. It originated as a sacred symbol in the worship of the sun and signified "time and eternity." It was adopted by the Chinese as a luck symbol; and as a continuous border, it means endless luck. The swastika is a luck symbol also in American Indian rugs.

The Persians, who are fond of floral patterns, use the peony as a symbol of spring and prosperity, the lotus for summer and purity, the chrysanthemum for autumn, fidelity, and constancy, the narcissus for winter, the peach blossom for love, the mushroom for immortality, a stream of water for eternity, the crane, pine, and peach for longevity, the cat for happiness, and the butterfly for love and happiness.

## DYES

Oriental dyes are vegetable dyes. The art of making the dye is often a family secret and is handed down from generation to generation. The dyer is a highly respected person in the community. Among the important plants used for dyeing purposes is madder, used for the daintiest pink to the deepest red, depending upon how long it is boiled. Onion skins, berries, and beets are used for singular types of red. The indigo plant is used for all blues and some reds and purples. Persian blue is indigo over madder. Yellow is produced from the bark of the yellow sumac tree, from yellow onion skins, and from saffron (root and

flowers) Green is indigo in combination with yellow Brown is produced by boiling walnut leaves or gall nuts Madder over indigo produces a very dark brown Black is produced by boiling iron filings with vinegar and the rind of pomegranate Gray comes from Smyrna gall nuts Purple and heliotrope are made from the bodies of marine insects and mollusks Red is also produced by boiling the wool with cochineal or sheepsblood Whether one gets a dark or light shade of a color depends upon how long the wool is boiled with the dye and upon the mordant used (The mordant is a chemical used to make the fiber hold the dye)

### WEAVING THE RUG

In order to produce an *Oriental rug* one must be supplied with (a) a design, (b) a set up loom, (c) wool of the colors and shades the pattern requires, (d) a batten, and (e) a pair of curved scissors If a pile rod is used, a razor blade is required for cutting the wool worked over the pile rod

The pile rod is an iron bar of  $\frac{1}{8}$  inch thickness and 2 inches shorter than the width of the loom The width of the pile rod depends upon the length of pile required on the rug Along the entire length of the rod is a groove used for inserting the razor blade to cut the wool The pile rod is used to prevent waste of material and helps produce an even and smooth pile

Oriental rugs are woven on an upright loom consisting of (a) the wrapping beam or roller carrying the

warp threads, (b) two harnesses carrying the heddles, (c) the reed, and (d) the material beam or material roller

In setting up the loom, you will need warp threads from 10 to 15 yards long, and twice as many single

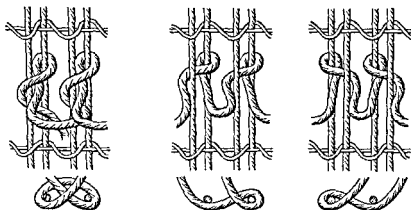


Figure 16 (Left) Ghiordes or Turkish Knot  
(Right) Sehna or Persian Knots

threads as the design requires knots, for each knot is worked over 2 threads plus 4 threads on each side for the selvage. Wind the threads tightly and with even tension around the warping beam, pull each thread one after the other through a heddle eye of either harness 1 or harness 2. If the 1st thread goes through the 1st heddle eye of harness 1, then the 2nd thread goes through the 1st heddle eye of harness 2, the 3rd thread through the 2nd heddle eye of harness 1, the 4th thread through the 2nd heddle eye of harness 2, etc.

Pull each thread through the reed and tie all the threads in units of 5 to the material beam. See to it

that all the warp threads are of even tension and well stretched

To start a rug one should work about 2 inches of plain weaving. This is done by pulling the weft threads alternately through shed 1 and shed 2. The sheds are formed by pulling harness 1 forward while harness 2 is drawn backward (shed 1) or by pulling harness 2 forward and harness 1 backward (shed 2). Care must be taken that the weft threads before they are battened down are drawn in at an angle of  $45^{\circ}$ . This will keep the rug an even width from top to bottom and prevent the narrowing of the width which is often found in an Oriental rug.

### CLASSIFICATION

The six chief types of Oriental rugs are the Caucasian, Turkish, Persian, Turkoman, Indian, and Chinese. These main divisions have important subdivisions and all of them have their special types of prayer rug recognizable by the niche at one end of the rug. The pile weave is generally used in Oriental rugs. The exceptions to this practice will be treated later under the caption, "Flat Weaves."

### CAUCASIAN RUGS

Caucasian rugs are distinguished by their geometric design if any floral pattern is used which is very rare, it is extremely severe and used in borders only. Besides the geometrical figures, the angular hook called the 'latch hook,' is a characteristic feature. The latch hook, used in Caucasian rugs only, is an out

growth of the Chinese fret. The color combination is bright red, dark blue or natural color as background, and different shades of these colors for the design. Caucasian rugs are also produced in Russia and the Balkan states where the design is of the same type, but the color scheme varies with the locality. Caucasian pile rugs are worked with the Turkish or Ghiordes knot, the flat weaves are worked in the Indian khilim technique for the floor rugs, and the Karabaghi technique for covers and hangings. Turkish wool is used for most Caucasian rugs, though sometimes goats' hair and plain wool are mixed and specially spun for that purpose.

The best known Caucasian rugs are the Shirvans with their natural-colored background.

The Karabaghis have a design of squares and triangles in the borders, while the background is plain. The color combination is red, blue, white, and yellow.

The finest of all Caucasian rugs are the Daghestans. The design is partly geometric, partly conventional. They are small prayer rugs, pointed at one end. The technique is a fine Ghiordes knot.

Also Caucasian are the Kurdistan rugs, of a red or dark blue background and a rather coarse weave, and the Kazaks, which have a fine texture.

A special type of Caucasian rug is the Sumaks, which have attained great popularity. They are worked in a special technique with loops and give the appearance of a fine knit stitch. They are falsely called "Kashmirs" because of the hanging threads on

the wrong side The Shirvans and Sumaks have large geometric patterns

#### TURKISH RUGS

Turkish rugs are made more for commercial purposes than for home use We find, therefore, that Western patterns, floral or geometric, are widely used in Turkish rugs Old Turkish rugs are very rare and very expensive The technique is the Ghiordes knot

The subdivisions are (1) The Koniah rug, its name of Greek origin It has a loosely woven texture Koniahs have a dark or light blue background with a pointed formation at both ends, border stripes in pink, and floral patterns in the corners (2) Kulah rugs, which are distinguished by their two stripes (one left and one right) of red and yellow hexagons and by their realistic floral design, all on a red background (3) Anatolian rugs, which have a red background and floral design loosely woven with the Ghiordes knot (*Fig 16*) (4) Ghiordes rugs, mostly prayer rugs, with a soft floral design and pointed niche at one end (5) The Oushaks, worked in large patterns, with a red background, and showing Moorish and Spanish influences (6) The Ladiks, the finest of all Turkish rugs, which are used as prayer rugs The main border consists of finely drawn lilies alternating with rosettes, the second border is of vines and leaves, while the narrow inner border is usually a ribbon pattern The design in the center has three points at one end and reciprocally drawn "vandykes" (usually five), with stems bearing graceful leaves and pomegranates or lilies The stems

are beautified by latch hooks. The background is red and blue, the design is done in blues, greens, and rust. (7) Another Turkish type is the Bergamo, which resembles the Ladik but is not so fine in texture.

## PERSIAN RUGS

The most beautiful of all Oriental rugs are the Persian. The soft color combinations and the floral and animal patterns have made these rugs famous. The outstanding types are the prayer, hunting, garden, and palace rugs.

The finest development of design and texture came during the sixteenth century. The famous Ardebil palace rug with its cartouche border, intricate floral design, and dark blue background, the Polonaise with their broad light green borders, and the "Polish technique" tapestries with their combination of pile and flat weaves, the latter in metal thread, are products of that period. (The cartouche is an ornamental border consisting of several units often oval in form and occasionally bearing inscriptions.)

The best known Persian rugs are (1) the Tabriz with a field of lotus flowers in pink, other flowers in soft colors, and green leaves on an ivory background. The border stripes are of red and bright blue in a delicate floral pattern. Though the design and color scheme is Persian, the Ghiordes knot is used. The center is a medallion. (2) The Hamadan medallion carpets, which have fretted grounds and are made of camel's hair. (3) The Schna, which shows a small pear and fish pattern in diaper arrangement, with very fine

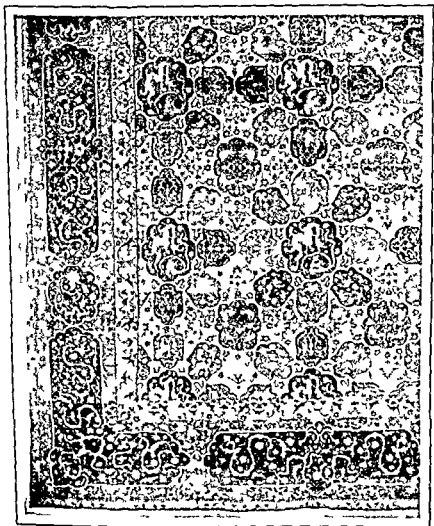
borders of a floral pattern. The Sehna knot is used, the background is ivory, with flowers in red, blue, and green. (*Fig 16*) Some of these rugs have simply a large pear design on a dark blue background. The warp is of cotton or linen, sometimes of silk. (4) The Khorassans, which have a dark blue background with an all-over Mina Khani design and some small white flowers, and a broad border of gold and narrow borders of pink and soft blue. (5) The Kermanshah, in a distinct floral pattern intertwined with the pear design. The Sehna knot is used in the most delicate shadings of rose, blue, green, and ivory. Other Persian rugs are the Sarouks, Bijure, Kashmirs, and Gorevans. They are named after the district they come from. Among the well-known Persian patterns are the Shah Abbas, the Herati or fish pattern, the Mina Khani, and the pear pattern combined with all forms of small flowers in soft color combinations.

#### TURKOMAN RUGS

Turkoman rugs are known by their dark red background and all-over pattern of octagons and hexagons. They are worked in an outline of black, with the Sehna knot over one thread only, hence the very fine texture. The other colors are blue, brown, orange, and white. These features are characteristic of the Royal and the Princess Bokhara types.

While the Tekke Bokhara rugs occasionally show the same type of pattern, with black and white on a red background, the majority of them have a quartered design, with small geometric figures known as the





Vietropo an Museum of Art

Persian Rug Safavi Period Early Sixteenth Century

**Katchli pattern** Though the people who produce them are of the Mohammedan faith, the rugs show the Vedic worship writings of Hindu origin

The Baluchians have either hexagonal patterns or floral designs of Persian origin

Turkoman rugs produced in districts near the Chinese border show Chinese influence Among these are the Samarkands, the background covered with Chinese frets, medallion centers, some in a dragon or a fish design Others of this type are the Yarkands, Kashgars, and Khorassans The color scheme similarly shows Chinese influence in its background of green rose, and gold

#### INDIAN RUGS

Indian rugs show Persian influence in the design, Turkoman influence in the color scheme The very minute floral design is worked on a dark rich red or blue background Some designs consist of spreading trees showing birds and other animals among the branches Other Indian rugs have an animal border design, more naturalistic than Persian animal designs Special palace and hunting rugs are worked in very fine materials including silk The lack of wool in India makes for the use of a mixture of cotton and silk, and more silk rugs are produced in India than in other countries Later Indian rugs are of a cheaper quality, being woven of jute and cotton instead of wool They are also dyed magenta red which dissolves readily in water Sometimes inferior mineral dyes are used



Museum of Fine Arts Boston

Indian Rug, Seventeenth Century

## CHINESE RUGS

Chinese rugs, though worked in the same technique as Turkish rugs, can easily be recognized by their color and design. Chinese rug design is based on symbols only. Because of these symbols the design can be traced back to the dynasty under which it originated. Characteristic of the Sung dynasty (960-1280), for instance, are the dragon in water, the dragon among flowers, the dragon and phoenix, the dragon in medallions, the lotus flower, the peonies, the lion and the bells, and various luck symbols.

Geometrical designs are of prehistoric origin. They are used in borders only. Among these are the pearl border, the T pattern, the dice pattern, and the swastika symbol.

The dragon pattern has several developments. The five-clawed dragon was used for the Imperial Court only, the four-clawed dragon between rivers and hills or between clouds stood for the reigning deity of the forces of nature. The dragon and phoenix represent happiness, the ball before the dragon signifies thunder and lightning, and a combination of the pearl and the dragon means thunder and rain. The cloud design, found also in some Persian rugs, looks like a single or double horseshoe. The water design consists of circles. The Buddhists contributed eight emblems of happiness: the flaming wheel, the state umbrella, the lotus flower, the canopy, the vase, the pair of fishes, the endless knot, and the conch shell.

Predominating colors for the background are a

golden yellow, white, blue, copper, or green. The design is worked in the softest shades of pink, blue, or the colors of the quaint flowers used. Dragons are usually worked in shades of gold, the phoenix in blue.

## FLAT WEAVES

## KHLIMS

The Orient produces two types of rugs, rugs of a flat weave and those with a pile weave. The flat weave is shown in the oldest type of woven materials

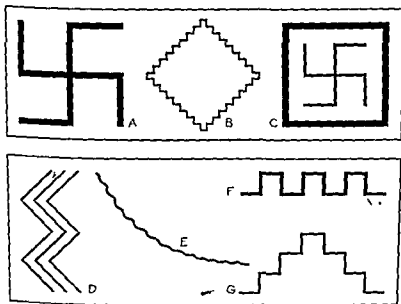


Figure 17

- |                                     |                                  |
|-------------------------------------|----------------------------------|
| A Swastika, a Luck Symbol           | D Lightning                      |
| B Star with Serrated Edge           | E Ancient Knife or Chipped Flint |
| C Swastika in Square, Luck in Cards | F Crown of a Battlement          |
|                                     | G Terrace                        |

This type of weaving was found in Egyptian tombs of 3000 years ago. Specimens of woven materials as

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## FLAT WEAVES

## KILIMS

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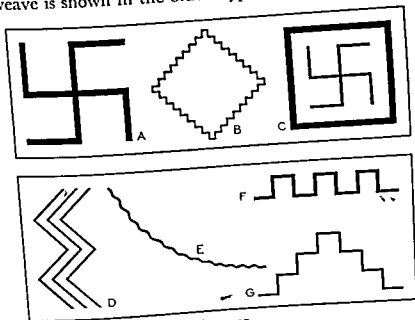


Figure 17

- A Swastika, a Luck Symbol  
 B Star with Serrated Edge  
 C Swastika in Square, Luck in Cards

- D Lightning  
 E Ancient Knife or Chipped Flint  
 F Crown of a Battlement  
 G Terrace

This type of weaving was found in Egyptian tombs of 3000 years ago. Specimens of woven materials as

well as spindles and looms were found in the prehistoric, submerged lake-dwellings of Switzerland.

Rugs woven in the flat weave are called *khilims*. A later type of flat weave is called the *Sumak*. *Sumak* was the Hebrew name for the capital of the province of Shirvan, where this new weave originated. There are two kinds of *khilims*, the open *khilim* or *Karamany* and the closed or Indian *khilim*.

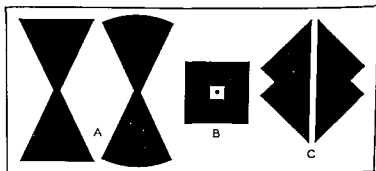
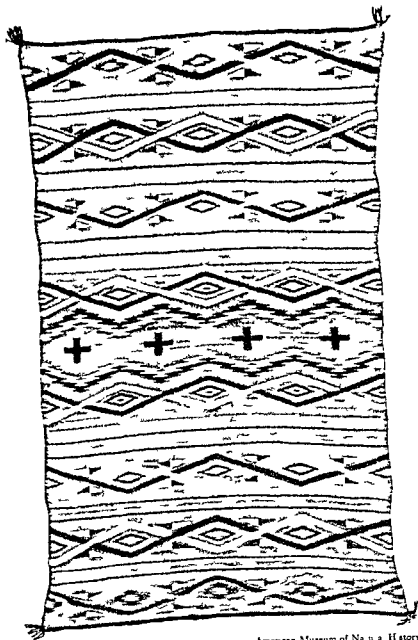


Figure 18

- A Queue Symbol of the Scalp
- B Square Within a Square Eye of Divinity
- C Bow Representing the Mayan God Nanyenesany

While the technique of the *Karamany* is essentially the same in all countries, the design, color combination, and materials vary with the place in which the work is produced. The weave itself has either threads hanging on the wrong side of the finished material, or these threads unnoticeably worked in, giving the finished product a flat and beautiful appearance on both sides. The pattern is usually geometric, but a floral design is used in some places. The blending of colors is most important in the production of a





American Museum of Natural History

Navajo Blanket (Background red designs dark blue yellow and white)

khilim pattern. The latch hook, the borders at each end, and the lock borders at the sides are significant points in a khilim.

There are Kurdistan khilims, which are made in large geometric figures and of rather coarse materials. The Sehna khilims coming from Persian districts are well known for their small patterns, their careful drawing, their gorgeous color combination, and especially

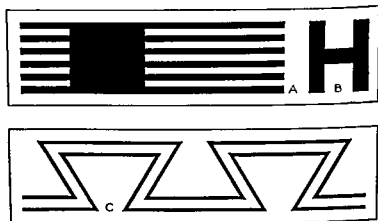


Figure 19

A Sun and rays      B Hopi design      C Border design

their so-called Kis-khilims, a special type which a girl weaves as a gift for her suitor. They are beautiful in design, color, and technique, both sides equally prepared for use, and therefore smooth. Sometimes colored beads or a lock of hair are woven in as a charm and a dark blue spot is worked in to ward off an "evil eye."

The Indian khilim differs from the Karamany khilim

in all features characteristic of each type, particularly in technique. It is a method of weaving used chiefly in the Scandinavian countries and the Balkan states, and by the American Indians.

In the Karamany khilim piece, the threads of the weft are not carried from one pattern to another but are carried back after encircling the sides of individual motifs, thus leaving openings in the material. In the Indian khilim, this is overcome by a method of joining or interlacing the wefts, called twisting. This allows for more play in the designing and makes for solidity and durability. The method of looping the wefts together is simply a passing of the left weft under and through the loop made by the right, or passing the right weft under and through the loop made by the left. This looping, if properly and neatly done, cannot be detected on either side of the work, thus making it reversible.

The Pueblo Indians of Arizona and New Mexico wove their cotton garments with exquisite artistic skill long before the coming of the Spaniards in 1540. It was left for the Navajo, however, to develop the art to a high degree, and authorities declare that theirs is the best blanket in the world. Blankets woven by these Indians today are as excellent as those fashioned



A



B

Figure 20

- A Corn (yellow)  
represents food  
B Sunbeams

early in their history. As the Indian developed the weaving art, the introduction of color suggested itself. To the Indian, color was sacred. It had a definite symbolism and everything connected with it was significant. (See *Figures 17, 18, 19, 20, 21, 22, 23*) Red was the color typifying sunshine, hence its dominance in so many Navajo blankets. The colors that symbol

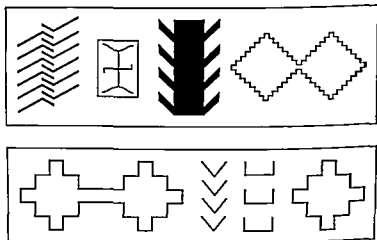


Figure 21 Center Designs

ized the four cardinal points of the compass were white, symbolic of the East, blue of the South, yellow of the sunset in the West, while black symbolized the dark, black clouds of the North. Green, representing spring and youth, and brown and gray, hues of death and decay, were also used in their textile weaving. Zigzag lines represent lightning, eight vertical lines of black, rain, a diamond shaped figure, a cloud, and a red figure with lines radiating from it, the sun.

## ORIENTAL RUGS IN THE MARKET

Vegetable dyes, which are used for Oriental rugs, produce bright colors. These too-vivid colors mellow and grow more beautiful with age and wear, ultimately acquiring a rich silky sheen. In his home, the Oriental goes about in coarse woolen stockings which act

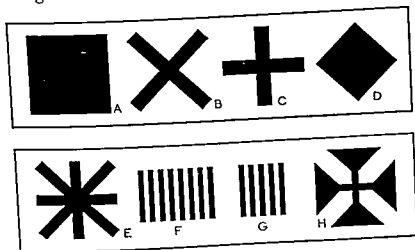


Figure 22

- A Square, Playing Card  
 B Diamond, Star  
 C Roman Cross  
 D St Andrew's Cross

- E Bright Star  
 F Rain  
 G Rainbow  
 H Maltese Cross

like a steady brush on the carpet. The Western visitor, on entering a mosque, is handed a similar pair of stockings to pull over his shoes.

In order to reproduce this characteristic gloss of an old rug, a chemical process for the treatment of new rugs has been devised, which of course only the expert can detect. This treatment, known in the trade as "doctoring of rugs," enhances the beauty of the rug

by toning down the color and producing a high gloss, but it is said also to shorten the life of the rug considerably, thus depreciating its value. Another device employed in the Orient to age rugs artificially is that of spreading the rug out in the market place where the

many feet of people and animals and wagon wheels may produce an "antique" rug in short order. Unfortunately this latter process occasionally also produces holes in the rug. In this way insistent customers for highly prized and valuable antique rugs are sometimes satisfied with imitations of antique rugs.

Rugs are damaged occasionally in transportation by

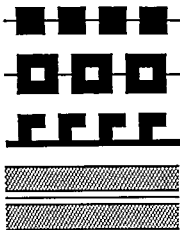


Figure 23 Border Designs

boat, since accidental immersion in sea water may cause deterioration. This is usually not detected until the rug is washed, when the affected parts often assume the appearance of having been moth eaten.

An Oriental rug requires special care. A large rug should be handled more carefully than a small one, because the warp or weft threads of a heavy rug are more liable to break. Rugs should not be hung on a line or fence for cleaning, as the foundation threads may break, letting the knots slip and spread apart. Brushing against the nap should be avoided, since this may loosen the knots and force dust into the texture.

A rug is often improved by washing. This is rarely feasible at home, but there are reliable establishments which do this work. It involves a stiff brushing in all directions except against the nap, with castile or wool soap and soft warm water, a thorough rinsing and drying process, and finally a sprinkling with oil or lard in order to restore the sheen.

---

TAPESTRY weaving is the oldest type of weaving. Its exact origin is unknown, the same technique having been used in Egypt, China, and Peru. Tapestry weaves are flat weaves. The earliest type discovered is an interlacing of threads at either right angles, or obliquely where curved lines were required. Linen, cotton, silk, and wool were used.

The term "tapestry" is applied nowadays to all sorts of embroideries, carpets, and upholstery, the Bayeux embroidered hangings, for instance, being referred to as "Bayeux tapestries", but the term "tapestry" is generally defined as woven cloth of pictorial design. Tapestries are usually classified as Coptic, Pre Gothic, Gothic, Renaissance, and Modern.

#### COPTIC

The Copts were descended from the ancient Egyptians. The first evidence of weaving, it will be recalled, was found in Egyptian tombs of about 3000 B.C. The oldest fragments of tapestry weaving were discovered in a tomb of about 1500 B.C. These are three pieces, made of linen, all at present in the Museum at Cairo.

Coptics are distinguished by their combination of horizontal and oblique weaving, the weaving of a



later period being done in a straight horizontal line. The art of Coptic weaving was also practiced by the Peruvians, Greeks, Romans, and Chinese. A fine example of a Greek Coptic is to be seen at the textile museum in Lyons. The design consists of fishes on a blue-green background. It was found on the Island of Antinöe in the Mediterranean and is supposed to have been woven about 800 B.C. Our knowledge of Greek Coptic tapestries is derived from the descriptions of classical writers.

Later Egyptian tapestries show the influence of foreign invasions. Egypt was conquered by the Greeks under Alexander the Great, then by the Romans, by the Persians, and by the Arabs. The Greek, Persian, and Mohammedan (Arabian) influences effected improvements in design, color, and technique. The flying shuttle was introduced. Roman weaving was done chiefly for dress material, the technique was very fine, but the design was simple and not so artistic as the others.

An excellent example of Peruvian weaving of this type is to be seen at the Victoria and Albert Museum in London. It consists of a headress ornamented with a diaper of ducks on a reddish background, a border of stags with their heads upside down to the diaper.

### PRE-GOTHIC

Tapestries woven in Europe before the fourteenth century are known as Pre-Gothic. The decline of the Roman Empire and the invasions of the many barbaric

tribes brought a decay in all the arts. Various monasteries, however, continued to practice the art of tapestry. A comparatively peaceful period in France during the reign of the Merovingian kings (448-752) enabled the churches and workshops to foster the arts again. The Moors were fine weavers and they established several centers in Spain. Design especially showed Moorish influence, and descriptive Cufic (Arabic) lettering appears on tapestries of the eighth century. Another tapestry center was built at Arras, France, during the tenth century. To the Church of St. Vaast in Arras are ascribed tapestries woven with gold and silver threads. The churches had accumulated great wealth, and, as centers of learning, they fostered and protected the arts. Tapestries depicting biblical stories originated and spread during the eleventh and twelfth centuries. Crusaders returning from the East brought Oriental tapestries of great beauty and splendor. In Germany tapestries depicting tales of mythology vied with those of biblical content. This competition spread to France, England, and Italy.

Pre Gothic technique shows various types of weaving, all on the high warp loom. (1) the simple Kara many khilim, as used in the Aubusson and Flemish tapestries, (2) the Indian khilim, as used in Swedish tapestries, (3) the Gobelin knot, as used in the oldest Gobelins (a tapestry manufactured in Paris) and in Swedish tapestries, (4) the Sumak.

There is one type of tapestry weaving which is a combination of the Sumak and pile weaves, called "Polish technique." It originated in Persia during



Metropolitan Museum of Art

Tapestry Courtiers with Roses Franco Flemish  
Arras or Tournai about 1435-1440

the sixteenth century when the Shah sent a gift of one hundred tapestries to King John Sobieski of Poland, hence the name. The beauty of these tapestries induced Count Charteroski of Poland to establish factories under his patronage, and to bring Persian weavers as teachers to Poland. This type of weaving is found also in Chinese ceremonial tapestries.

### GOTHIC

Gothic tapestries are verdures or other types of either a romantic or a religious nature. Verdures, as the name implies, are tapestries representing chiefly green trees and foliage. The castles of the fourteenth and fifteenth centuries were fortresses rather than homes, and beautiful tapestries depicting biblical or romantic stories were used to cover the bare stone walls.

In times of peace the ladies and gentlemen of the court went picnicking in their rose gardens or in the woods. The influence of the outdoors reproduced in tapestry the famous verdures, the *millefleurs*, the set of the "Courtiers with the Roses" now at the Metropolitan Museum of Art in New York, and the set of the "Lady and the Unicorn" at present in the Cluny Museum in Paris. Another famous Gothic tapestry entitled "King Arthur" may also be seen at the Metropolitan Museum.

Gothic tapestries are distinguished by their gorgeous costumes richly woven with gold and silver, and their primitive flat drawings, the most prominent person being the largest figure and all other personages in proportion according to their rank. Several stories

are often told on the same tapestry, which is divided into columns for that purpose, and examples of Gothic architecture are frequently pictured. The colors are comparatively few (only seven) but beautifully harmonious. Red for dress predominates, and blue, gold, tan, brown, and green are used elaborately. Early Gothics show no borders, while later ones have very simple narrow borders. There is also a "transition period" showing the flat Gothic drawing with a narrow border of flowers or fruits.

### RENAISSANCE

These tapestries are known for their gorgeous colors, with blues predominating. Unlike tapestries of the Gothic period, those of the Renaissance show perspective and realism. The borders are broad and often depict stories of their own which may or may not be related to the main picture.

### SIXTEENTH CENTURY

Two types of looms were used, the vertical loom or *haute lisse* and the horizontal loom or *basse lisse*. With the high-warp (*haute lisse*) loom the weaving was much finer, more tedious, and therefore much more expensive.

The tapestry weavers were members of a guild, a kind of craft union prevalent at the time. The master weaver had his staff consisting of skilled workers and apprentices. Severe and often cruel punishment was inflicted for poor work. For disobeying certain rules a worker might have an ear or a hand cut off. The

increase in production and the development of trade gradually caused the guild system to disappear

By the beginning of the sixteenth century Flemish workshops had achieved supremacy in the weaving of tapestry. Among the Flemish craftsmen, Nicholas Karcher and John Karcher were the most famous. Van der Weyden, a noted designer of tapestries, used religious themes. Margaret of Austria ordered her court painter, Bernard van Orley, to paint the cartoons for a set of four pieces of tapestry representing the "Passion of Christ." Pierre van Pannemaker, the master weaver of Brussels, supervised the weaving. They constitute part of the Royal Spanish Collection. Brussels was given the order to weave the set, "The Acts of the Apostles," for Pope Leo X. These tapestries were designed by the great painter Raphael and executed by Peter van Aelst. Flemish tapestries of this period bear an official emblem consisting of a red shield supported by two "B's," the letters being woven in a lighter tone than the selvage. Religious persecution caused many weavers to emigrate to England, France, Italy, Germany, and Spain during the latter half of the sixteenth century.

France had established several tapestry centers by this time. Fontainebleau with Jean and Pierre Lebris as master weavers and Claude Baudouin as the cartoonist, Paris with Nicholas Karcher, Pasquier Mortaigne, and Pierre du Larry, Tours with Jean Duval and his sons, Marc, Hector, and Etienne. The products of these French establishments, however, were inferior to the Flemish at that time.



Metropolitan Museum of Art

Tapestry The Birth of Hercules and Iphicles School of Tournai,  
First Third of Sixteenth Century

## EIGHTEENTH CENTURY

The eighteenth century brought designers like Jean Baptiste Oudry and François Boucher to Beauvais. The latter, considered one of the best painters of the time, was placed in charge of the Gobelin, Beauvais, and Aubusson factories. While he spent most of his time at the Gobelin and Beauvais factories, he placed the artists Dumons, and, later, Juliard in charge of the Aubusson. These men produced splendid work. It will interest students of French literature, among others, to know that Oudry composed a series of designs picturing the famous fables of La Fontaine for the Beauvais factory. These tapestries became very popular and were extensively reproduced for furniture coverings.

## ENGLISH

While several tapestry factories were started in England, the most famous was the one at Mortlake. Tapestries produced there during the seventeenth century rivalled those of France in beauty and technique. Philip de Maecht was induced to leave the Gobelins for Mortlake. The first set produced was the story of "Vulcan and Venus." Among English tapestry weavers of renown were Stephen Demay and Paul Saunders.

## ITALIAN

The fifteenth century marks the beginning of tapestry weaving in Italy. The finest tapestries of that period were produced at Mantua for the powerful



Gonzaga family and were designed by the painter Mantegna. The sixteenth century finds important centers of the tapestry art at Milan, Ferrara, Florence, and Rome. Italy had her own painters: Raphael, Giulio Romano, Andrea Mantegna, and Batista Dosso, and famous Flemish and French weavers were induced to come and take charge of the tapestry establishments. The renowned Nicholas Karcher thus became the director of the Medici factory at Florence.

#### GERMAN

German tapestries were neither exceptional in design nor did they show a superior technique. They are known for their somewhat lengthy scrolls with German inscriptions. The materials used were partly wool, partly linen.

#### SPANISH

Spanish tapestries were made at the royal tapestry factory at Madrid, founded in the early eighteenth century. The cartoonists were Goya, the famous Spanish painter, and Bayeu. Jacques Vandergoten was director of the factory, which, by the way, is still in operation.

#### RUSSIAN

The first Russian tapestry factory was established in the eighteenth century during the reign of Peter the Great and was placed under the direction of Behagle, who came from Beauvais. The French weavers taught the Russians and then returned to France. The enterprise was not successful and was discontinued in 1859.

## AMERICAN

Tapestry work was introduced into this country by Baumgarten, with the assistance of Swiss and Italian weavers. At the present time perhaps the best-known tapestry establishment is that at Edgewater, New Jersey. There are several studios in New York City doing modern commercial tapestries for upholstery and some tapestry repairing.

## MODERN

Today practically every country produces tapestry. Many examples are modern in design, while the technique often shows the influence of the Machine Age in which we live. Tapestries, "ultra-modern" in design as well as in color, were brought here recently from France by Madame Cuttoli and exhibited in New York City. Some of these had been worked from cartoons by Picasso, Matisse, and other well known French painters of today. The technique of these woven pictures was exceptionally fine, light and shadow being depicted in silk and wool. They were woven on a low-warp loom.

RUGS AND TAPESTRIES WORKED  
ON CANVAS

Embroidered hangings are at least as old as the Pharaohs of Egypt. There they were made on linen in floral and animal patterns. The Babylonians too produced very fine embroideries for their religious ceremonies. Embroidery on silk has a long history in

China and Persia The Moors brought exquisite embroideries of gold and silver to Spain The Christians under the Roman Emperor Justinian (527-565) used embroidery to decorate altar cloths and stoles The so-called "Bayeux Tapestries" were merely embroidered panels

The early origin and popularity of embroidery may be attributed to its convenience, since the worker was not confined to a stationary loom, as in weaving, and to the fact that certain designs, especially those involving curves, were more easily executed in embroidery than in weaving

In the sixteenth century needle-point upholstery was developing in France and spreading to England, Italy, Germany, and Spain This type of work was done on a loosely woven linen canvas The stitch is worked on the slant over two threads and known as *gros point*, or worked over a single thread and known as *petit point* Still another stitch called *Beauvais point* is worked straight up and down over two threads The design was originally geometric The seventeenth, eighteenth, and nineteenth centuries produced designs of various styles The boudoir of Marie Antoinette in the Palace of Versailles has some beautiful furniture coverings in the rococo style Designs of woven tapestry also were reproduced in needle point

Another type of tapestry, said to be of Hungarian origin, achieves the reproduction of exquisite designs on canvas by means of stitches of different lengths worked vertically This work is particularly adapted to the reproduction of pictures rather than large panels



A



B

Paternayan Brothers Inc.

- A Long Stitch Weave on Canvas
- B Hand Loom with Gobelin Weave

The long stitches seen under glass give the picture the appearance of a painting in water color.

The Oriental rug, as well as tapestry, is easily reproduced on canvas. The same knots, either Turkish or Persian, are used. The warp threads of the canvas form the warp; and the weft threads, the weft. The knots are inserted with a needle over 2 warp threads; and for the next row 2 weft threads are skipped.

Hooked rugs are worked with a special rug hook on stamped foundation material stretched on a frame. They are deservedly popular. American colonial rugs are appreciated for their beautiful patterns and their durability.

The Turkish and Persian knots worked with Persian wool on canvas produce a material too fine for the wear and tear of a floor covering. It is more suitable for couch covers, table covers, and hangings. A practical floor covering of this sort requires obviously a heavier wool and a different kind of knot. The writer, while playing once with a crochet hook and some wool and canvas, accidentally produced a stitch which made the wrong side of the material look like needle point while the right side looked like a genuine Oriental rug. This stitch, worked with heavy Smyrna wool, produces a very attractive and durable "Smyrna canvas rug."

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THE word "lace" is derived from the Latin word *laqueus* meaning "noose." In the fifteenth century the term was used to denote narrow braid or cord on dresses. Until the seventeenth century true lace was called "passemment." "Parchment" and "bone lace" also were terms used formerly to designate genuine lace. The chief present sources of handmade lace are Belgium, France, Italy, England, and Ireland. The manufacture of lace by machines is also widespread. The important types of handmade lace are (1) needle point, (2) bobbin lace, (3) macrame, (4) filet, (5) crochet, and (6) knitted lace.

#### NEEDLE-POINT LACE

This lace is worked on parchment and is of Italian origin. The pattern is drawn on parchment. A skeleton pattern is then worked either with several linen threads or braids, or with tape stitched to the parchment. To this framework the solid parts of the design and the meshes are attached.

The stitches used in needle-point lace are (1) the linen stitch, where no braid or tape is used and only drawn threads are fastened to the parchment, (2) the buttonhole stitch, (3) the Swedish weaving (the latter

China and Persia The Moors brought exquisite embroideries of gold and silver to Spain The Christians under the Roman Emperor Justinian (527-565) used embroidery to decorate altar cloths and stoles The so called "Bayeux Tapestries" were merely embroidered panels

The early origin and popularity of embroidery may be attributed to its convenience, since the worker was not confined to a stationary loom, as in weaving, and to the fact that certain designs, especially those involving curves, were more easily executed in embroidery than in weaving

In the sixteenth century needle point upholstery was developing in France and spreading to England, Italy, Germany, and Spain This type of work was done on a loosely woven linen canvas The stitch is worked on the slant over two threads and known as *gros point*, or worked over a single thread and known as *petit point* Still another stitch called *Beauvais point* is worked straight up and down over two threads The design was originally geometric The seventeenth, eighteenth, and nineteenth centuries produced designs of various styles The boudoir of Marie Antoinette in the Palace of Versailles has some beautiful furniture coverings in the rococo style Designs of woven tapestry also were reproduced in needle point

Another type of tapestry, said to be of Hungarian origin, achieves the reproduction of exquisite designs on canvas by means of stitches of different lengths worked vertically This work is particularly adapted to the reproduction of pictures rather than large panels

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THE word "lace" is derived from the Latin word *laqueus* meaning "noose." In the fifteenth century the term was used to denote narrow braid or cord on dresses. Until the seventeenth century true lace was called "pasement." "Parchment" and "bone lace" also were terms used formerly to designate genuine lace. The chief present sources of handmade lace are Belgium, France, Italy, England, and Ireland. The manufacture of lace by machines is also widespread. The important types of handmade lace are (1) needle point, (2) bobbin lace, (3) macrame, (4) filet, (5) crochet, and (6) knitted lace.

#### NEEDLE-POINT LACE

This lace is worked on parchment and is of Italian origin. The pattern is drawn on parchment. A skeleton pattern is then worked either with several linen threads or braids, or with tape stitched to the parchment. To this framework the solid parts of the design and the meshes are attached.

The stitches used in needle-point lace are (1) the linen stitch, where no braid or tape is used and only drawn threads are fastened to the parchment, (2) the buttonhole stitch, (3) the Swedish weaving (the latter

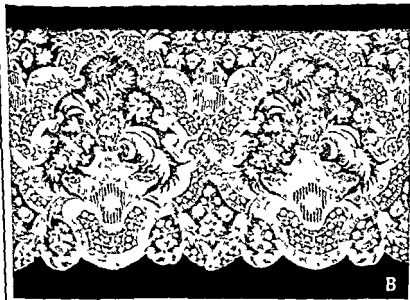
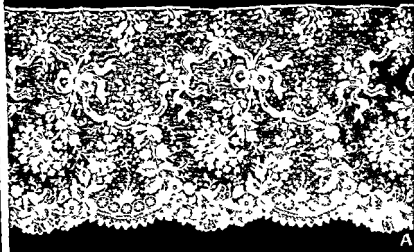


The long stitches seen under glass give the picture the appearance of a painting in water color.

The Oriental rug, as well as tapestry, is easily reproduced on canvas. The same knots, either Turkish or Persian, are used. The warp threads of the canvas form the warp; and the weft threads, the weft. The knots are inserted with a needle over 2 warp threads; and for the next row 2 weft threads are skipped.

Hooked rugs are worked with a special rug hook on stamped foundation material stretched on a frame. They are deservedly popular. American colonial rugs are appreciated for their beautiful patterns and their durability.

The Turkish and Persian knots worked with Persian wool on canvas produce a material too fine for the wear and tear of a floor covering. It is more suitable for couch covers, table covers, and hangings. A practical floor covering of this sort requires obviously a heavier wool and a different kind of knot. The writer, while playing once with a crochet hook and some wool and canvas, accidentally produced a stitch which made the wrong side of the material look like needle point while the right side looked like a genuine Oriental rug. This stitch, worked with heavy Smyrna wool, produces a very attractive and durable "Smyrna canvas rug."



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- A. Flounce, Needlepoint, Point de Gaze  
Belgian Brussels, Nineteenth Century
- B. Flounce, Bobbin, Point D Angleterre  
Flemish, Eighteenth Century

two are called brides and are used for connecting the figures in the design), (4) the brides with the picots, (5) the *réseau* (network), a background worked in hexagons or squares, and (6) the *point d'esprit* or loop stitch

The origin of needle point lace (*Ill*, p 69) can be traced to the drawn and cut work (*tela tirata* and *punto tagliato*) with filling of lace stitches (*reticella*) produced in Italy during the sixteenth and seventeenth centuries. The earliest examples were geometric patterns. The *lassis* or darned netting also originated there.

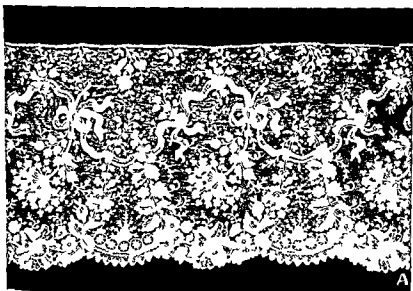
Venetian point lace was the climax of needle point lace in the seventeenth century. There are three distinct types of this work:

(1) the raised, or rose point, or *gros point*, distinguished by considerable relief, which has been compared to sculpture in marble. The several subdivisions of this type are: (a) the rose point, known for its richness of detail, (b) the *point de neige*, characterized by the little loops (picots) resembling snow flakes, (c) the *point plat*, having no relief, the graceful stem patterns being united by bars, and (d) the Caroline point or mermaid lace, a kind of rose point originally copied from seaweed.

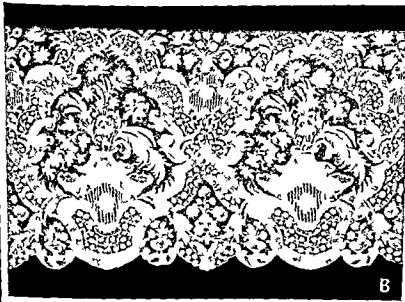
(2) the *point de Venise*, a *réseau* (network) with a very fine mesh (*tulle* or *toile*).

(3) the *point d'Espagne*, a gold and silver lace of geometric pattern.

The first lacemakers were brought to France from Venice during the reign of Louis XIV, given special privileges, and settled in Alençon. A new French style



A



B

Metropolitan Museum of Art

- A Flounce Needlepoint Point de Gaze  
Belgian Brussels Nineteenth Century  
B Flounce Bobbin Point d'Angleterre  
Flemish Eighteenth Century

of design consisting of human and animal figures was produced in a very fine mesh, and a rococo pattern with canopies. The stitch is a fine looped *reseau*. A later development, called *point d'Argenton*, is distinguished by its large bars with picots, its bold flowers connected by a buttonhole stitch, and its hexagonal background. Brussels needle point lace is an imitation of Alençon (French). One type is worked with tulle background and is called *point appliqué*, another type, called *point de gaze* ("gauze point"), has a machine made background. Irish needle point lace is a copy of Venetian needle point, but is done with a crochet hook in crochet stitches, the single figures being worked separately and connected by a fine picoted background of squares.

### BOBBIN LACE

Bobbin or pillow laces may have originated in Egyptian plaiting of the Coptic period. A number of cylindrical bobbins were unearthed, however, at the ancient Roman settlement of Claterna, which would seem to indicate that this type of lace was made or had its beginning during the first decade of the Christian era. England in the thirteenth century produced some very fine lace of this type, but never excelled in the making of handmade bobbin laces (*Ill*, p 69).

Bobbin laces are worked with a parchment attached to a pillow or cushion. The linen thread is wound on the bobbin and each thread is attached with pins to the cushion and the parchment where the design is to begin. The stitches used are (1) the linen stitch

used for the interlacing, (2) the squares, and (3) the hexagons.

Italian bobbin laces are known as Genoese and Milanese *guipure*. Most of these were worked in gold and silver and silk thread. They were very popular and are mentioned in the wardrobe of Queen Elizabeth of England. The famous *torchon* laces, as well as Maltese and Belgian types, were copied in silk during the nineteenth century in China, where English missionaries had introduced this work. Large quantities of this fine lace found its way from China into America and Australia during the early nineteenth century. Bobbin lace is produced also in the Aegean Islands, and an extremely fine type of silk bobbin lace is produced in Malta. Belgian Chantilly lace originated in the seventeenth century at Brussels and Ghent. Other well-known bobbin laces are the Valenciennes, Mechlin, Binche, and Duchesse. Bobbin lace was introduced to Holland in the sixteenth century, gold, silver, and silk being reserved for the nobility and only linen and cotton laces allowed the peasants.

### MACRAMÉ

Macramé is of Arabian origin and consists of various types of knots worked into designs. The knots are made on a foundation cord consisting usually of two parallel threads stretched on a board or cushion. (Fig. 24)

The most common types of knot used may be described as: (1) the casting on of threads, (2) the buttonhole stitch (Fig. 25), (3) the buttonhole with

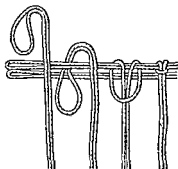


Figure 24 Macramé — Casting On of Threads

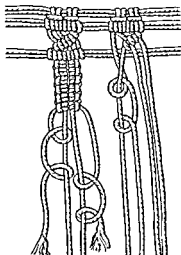


Figure 25 Macramé — Buttonhole Stitch

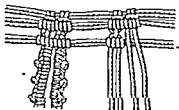


Figure 26 Macramé — Buttonhole Stitch with Picot

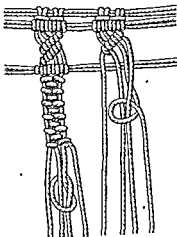


Figure 27 Macramé — Linen Stitch or Collecting Knot

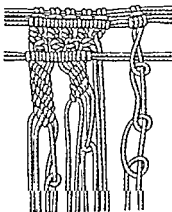


Figure 28. Macramé Bars

picots (*Fig. 26*), (4) the linen stitch or collecting knot (*Fig. 27*), (5) the bar (*Fig. 28*), (6) the basket knot (*Fig. 29*), and (7) the flat or Solomon knot (*Fig. 30*).

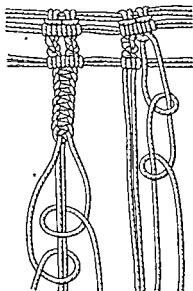


Figure 29 Macramé —  
Basket Knot

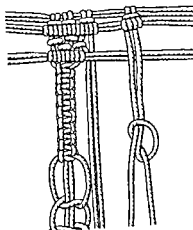


Figure 30 Macramé — Flat  
or Solomon Knot

The linen stitch or collecting knot is worked with from 2 to 4 threads.

The bars are usually worked in units of 8. Bars may begin with the 7th thread and be worked with the right hand, or may begin with the 2nd thread and be worked with the left hand.

The basket knot is made with a unit of 4 threads.

The flat or Solomon knot is made with units of 4 threads, the ends of the 2 middle threads being held in the mouth while the hands manipulate the remaining 2 threads.



## FILET OR NET LACE

These laces are usually classified as (1) Coptic, (2) Persian, and (3) Peruvian net

The Coptic type is made on frames, the threads being drawn vertically on the frames while the knots are worked in horizontally

The Persian net is made with a needle over a card-board, then stretched and embroidered with silk and metal threads

The Peruvian net was known as early as the ninth century, and fragments of such netting have been found in the submerged lake dwellings of Switzerland

Beautiful filet lace was known in Italy in the thirteenth century under the name *punto a maglia quadra*. From Italy it spread to France. Catherine de' Medici liked this type of lace so well that she took lessons in how to make it and is supposed to have made over a hundred pieces herself (*Ill*, p 75)

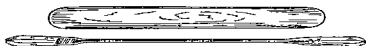
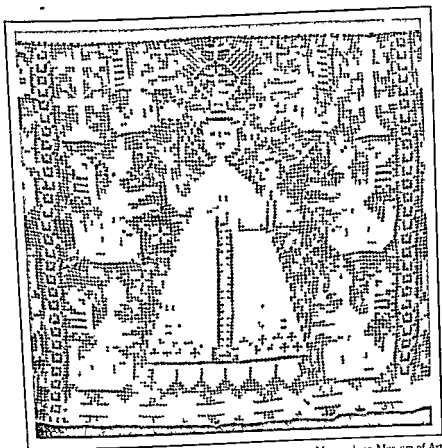


Figure 31 Mesh Stick and Netting Needle

Filet lace is worked with a netting needle over a mesh stick (*Fig 31*) in order to get all the meshes even. A square is made by starting with one loop over the mesh stick, each succeeding line being increased by one mesh added to the last mesh until the desired width is attained. The next row is worked without increasing. Each row thereafter is decreased by work-



Metropolitan Museum of Art

Network (flet) Spanish Eighteenth Century

ing two meshes together at the end of each line until one mesh is left on the mesh stick. The finished net is then stretched on a frame and the embroidery done. The foundation net may be a square, an oblong (Fig. 32), or round (Fig. 33). Each one is begun with one loop only, except the round one which begins with 8 loops in the 1st row.

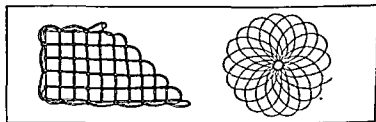
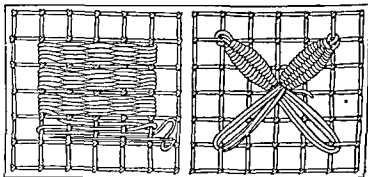


Figure 32 Oblong Netting

Figure 33 Circular Netting

The most common stitches used in filet are known as: (1) *point de reprise* or darning stitch (Fig. 34), (2) linen stitch (Fig. 36), (3) *point d'étoile* or star stitch (Fig. 37), (4) *point d'esprit* or loop stitch (Fig. 38),

Figure 34 Point de Reprise —  
Darning StitchFigure 35 Feuilles in Point  
de Reprise

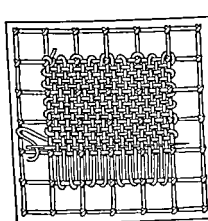


Figure 36 Lanen Stitch

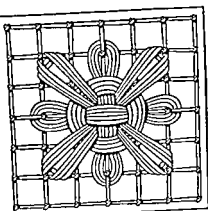


Figure 37 Point d'Étoile  
or Star Stitch

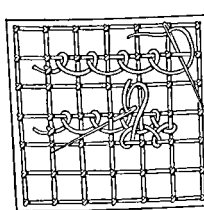


Figure 38 Point d'Esprit  
or Loop Stitch

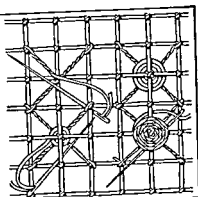


Figure 39 Brides and Rosettes

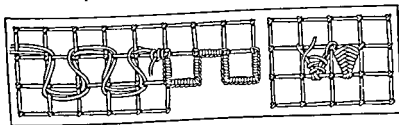


Figure 40 Point de Feston or Buttonhole Stitch



Figure 41 Dents, Point  
de Reprise

(5) brides and rosettes (Fig. 39), (6) *point de feston* (Fig. 40), (7) *dents*, *point de reprise* (Fig. 41), (8) *coins*, *point de reprise* (Fig. 43), (9) *filet serti* (Fig. 42), (10) *point de poste* (Fig. 44), (11) buttonhole stitch (Fig. 45), and (12) *feuilles* in *point de reprise* (Fig. 35).

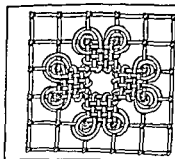


Figure 42 Filet Serti

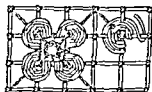


Figure 43 Coins, Point de Reprise

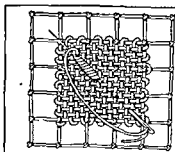


Figure 44 Point de Poste

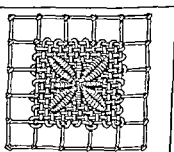


Figure 45 Point de Poste with Buttonhole Stitch

## CROCHETING

Crocheting is the simplest form of lacemaking. It is produced by forming a single thread into a single chain of loops by the use of a crochet hook. This

simple implement may be had in all sizes. Crochet hooks are made of bone, celluloid, or steel. Steel hooks are used in the production of fine laces.

This work was brought into Hungary probably during the fifth century, A.D., when the Mongolians first invaded that country, and it spread ultimately all over Europe because of its simplicity and beauty of design. The materials used are wool, worsted yarns, linen, cottons, silk, and metal threads. There are a few simple stitches which are used in every lace design. Once the knowledge of these stitches is acquired, it is easy to follow almost any design.

There are several types of crocheting: (1) Hungarian or filet crochet; (2) Maltese crocheting (also known as hairpin lace), which is worked with two implements, a steel crochet hook and a fork-like instrument also of steel, the loops being made with the crochet hook over the fork, instead of in a *punto in aria*, or in a chain; (3) Irish crochet, the third type, is nearest in form, design, and richness to needle-point lace. Here also the basic forms of the design are worked out first with a crochet hook and then connected by brides, instead of using a design on parchment; and the brides may be either chain stitches with picots or single crochet stitches worked over chains in order to strengthen the material. This is a rather expensive kind of lace.

The most common stitches used in crocheting are: (1) chain stitch (*Fig. 46*), (2) single crochet stitch (*Fig. 47*), (3) half double crochet stitch (*Fig. 48*), (4) double crochet stitch (*Fig. 49*), (5) treble stitch



Figure 46 Chain St tch



Figure 47 Single Crochet Stitch



Figure 48. Half Double Stitch



Figure 49. Double Crochet Stitch

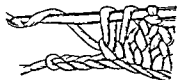


Figure 50 Treble Crochet Stitch

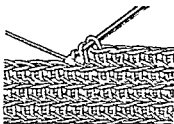


Figure 51 Rib Stitch



Figure 52 Slip Stitch



Figure 53 Space or Filet Mesh



Figure 54. Block Stitch



Figure 55. Picot

(Fig. 50), (6) rib stitch (Fig. 51), (7) slip stitch (Fig. 52), (8) space or filet mesh (Fig. 53), (9) block (Fig. 54), (10) picot (Fig. 55), (11) French space or mesh



Figure 56. French Space Stitch

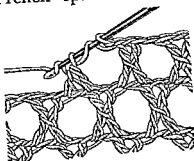


Figure 57 Cross Stitch



Figure 58 Cluster or Shell Stitch

(Fig. 56), (12) cross stitch (Fig. 57), and (13) cluster or shell stitch (Fig. 58).

## KNITTING

Knitting is produced by making a single thread of yarn into a fabric of loop structure. Two or more knitting needles are used in this process. The needles are made of steel, bone, wood, or celluloid, according to the type of texture desired.

Knitting was known in Europe by the fourteenth century, but it was used for hoisery and other dress materials only. Early in the nineteenth century various types of knitting stitches began to be employed



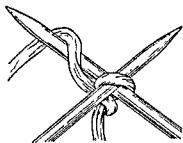


Figure 59 Casting On

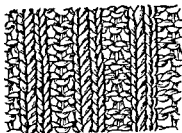


Figure 63 Coarse Ribbing



Figure 60 Plain Knitting



Figure 64 Narrowing Stitch

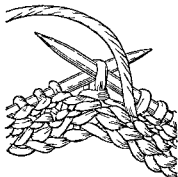


Figure 61 Purl Stitch

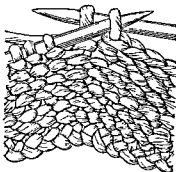


Figure 65 Slip Stitch and Bind



Figure 62 Ribbing



Figure 66 Cross Open Stitch

in making lace. Knitted lace is a very fine and expensive type. The materials used in knitting are wool, silk, cotton, linen, mohair, rayon, and metal threads.

There are two types of knitting, the English and the Continental. The latter is easier and faster.

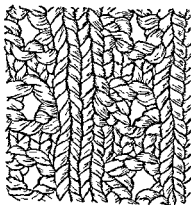


Figure 67 Eyelette

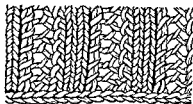


Figure 68 Fagotting

The most common stitches used in knitting may be described as: (1) casting on (*Fig. 59*), (2) plain knitting (*Fig. 60*), (3) purl stitch (*Fig. 61*), (4) ribbing (*Fig. 62*),

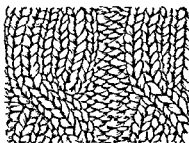


Figure 69. Cable Stitch

(5) coarse ribbing (*Fig. 63*), (6) narrowing stitch (*Fig. 64*), (7) slip stitch and bind (*Fig. 65*), (8) cross open stitch (*Fig. 66*), (9) eyelette (*Fig. 67*), (10) fagotting (*Fig. 68*), and (11) cable stitch (*Fig. 69*).

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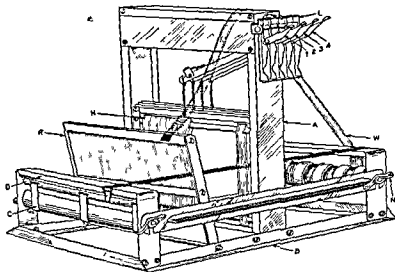
PLAIN weaving, that is, an interlacing of warp and weft, was practiced by the American Indians before Europeans came to America. The Indian's loom was primitive—just two sticks on which to stretch the warp, the type still used by the Indians for weaving blankets.

The early English settlers in America continued for some time to import their textiles from the mother country. There were several reasons for this, the most important of which was the British insistence upon monopolizing the colonial trade and fostering their own industries. Besides, the textiles made here were inferior to the English product.

The Industrial Revolution, as it is known, with its application of improved machinery to spinning and weaving, radically changed the situation. The Frenchman, Jacquard (1752-1834), invented the mechanical loom. Despite the antagonism of the workers to these mechanical inventions, an antagonism which sprang from their fear of losing their livelihood, machines continued to improve and multiply until weaving by hand was relegated to the status of a household art.

Today hand woven materials, especially linen, may be said to be experiencing a revival. Hand-woven

linens are more durable and more beautiful than the machine product. In New England and the South there are many establishments where weaving by hand is being taught. Colonial patterns are used for table covers, cushion tops, bedspreads, scarfs, mats, and a



*Courtesy Struett Mfg. Co.*

Figure 70 Four-Harness Table Loom

variety of other articles of this type. The material used may be mercerized cotton, linen, wool, silk, or rayon.

The looms used are the 4, 6, 8, and 10-harness looms; and the patterns are still the famous colonial patterns brought here from England, France, Holland, and Norway. The looms are either table looms or floor looms. The sheds on the floor loom are produced by operating the treadles with one's feet, of course. The hand loom has levers at the right side of the loom which are operated by the right hand.

In order to produce a woven article, one must pre-

pare the warp and set up the loom before one can start the actual weaving. The length of the warp one can put on a loom depends upon the size of the loom. The warp consists of the length-threads of the article

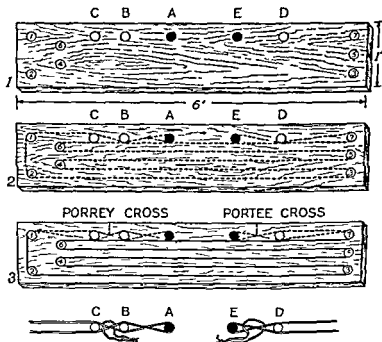


Figure 71 (Above) Warping Board (Below) Securing Crosses

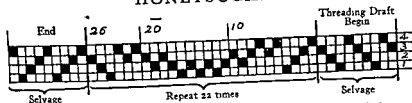
to be woven and has to be drawn through the reed and the heddle eyes of the shafts (frames carrying the heddles), the number of threads varying with the design and width of the material. When the whole length of the warp has been rolled upon the warping beam and drawn through the reed and shafts, it is finally stretched and tied to the material beam.



American Bedspread, Eighteenth-Nineteenth Century

The most popular loom for home use is the 4-harness loom. In instructions for weaving, the shaft next to the reed is usually referred to as number 1. The others follow in order, as numbers 2, 3, and 4. In threading the draft, thread from right to left. In threading in the selvage of any pattern, 2 threads should be used for each heddle, to make it stronger. Each draft consists of (a) the selvage and (b) the pattern unit. The pattern unit is repeated as often as may be required for the width of the desired article and finished off with a reversed selvage. Instructions for the weaving of several popular patterns follow. They are all arranged for a width of 600 threads. These patterns are reproduced through the courtesy of the Structo Manufacturing Company, for whom Mary M. Atwater made the original drawings.

# HONEYSUCKLE



To put Honeysuckle pattern on the #600 Structo loom thread the right-hand selvage as indicated on the draft Repeat the pattern 22 times (omitting selvage) End with left hand selvage.

Heddles on harness 1, 114  
 " " " 2, 180  
 " " " 3, 181  
 " " " 4, 115

## WEAVING DIRECTIONS

A Levers 3-4, once  
 " 1-4, "  
 " 1-2, twice  
 " 1-4, once  
 " 3-4, "  
 " 2 3, "  
 " 1-2, 3 times  
 " 1-4, 3 "  
 " 3 4, 6 "  
 " 1-4, 3 "  
 " 1-2, 3 "  
 " 2-3, once  
 Repeat

Weave with a tabby —  
 Tabbysheds 1-3  
 and 2-4

B Levers 3-4, once  
 " 1-4, "  
 " 1-2, twice  
 " 2-3, "  
 " 3-4, 3 times  
 " 1-4, 6 "  
 " 3-4, 3 "  
 " 2-3, twice  
 " 1-2, "  
 " 1-4, once  
 " 3-4, "  
 " 2-3, "  
 " 1-2, 3 times  
 " 2-3, once  
 Repeat

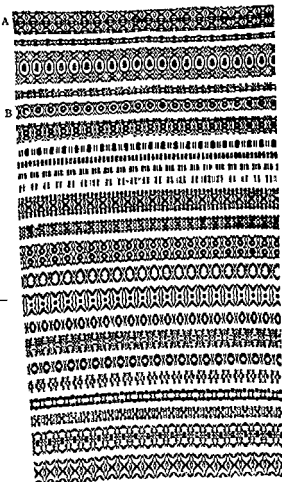


Figure 72 Honeysuckle Pattern



A great variety of little borders may be woven on this threading — as the illustration shows. This is a favorite threading for small articles.

For the oval figure shown on the illustration, weave as follows:

Levers 3-4, twice

" 2-3, "  
 " 1-2, "  
 " 1-4, "  
 " 1-2, "  
 " 2-3, "  
 " 3-4, "  
 " 1-4, "  
 " 1-2, 3 times  
 " 2-3, 3 "  
 " 3-4, 8 "  
 " 2-3, 4 "  
 " 1-2, 3 "  
 " 1-4, twice  
 " 3-4, "  
 " 2-3, "  
 " 1-2, "  
 " 1-4, "  
 " 1-2, "  
 " 2-3, "  
 " 3-4, "

SMALL BORDER

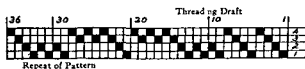
Levers 3-4, once }  
 " 1-4, " } 4 times  
 " 1-2, " }  
 " 2-3, " }  
 " 3-4, twice  
 " 1-4, "  
 " 1-2, 4 times  
 " 2-3, 8 "  
 " 1-2, 4 "  
 " 1-4, twice  
 " 3-4, "  
 " 2-3, once }  
 " 1-2, " } 4 times  
 " 1-4, " }  
 " 3-4, " }

### ANOTHER LITTLE BORDER

Levers 3-4, 6 times

" 1-2, twice  
 " 1-4, "  
 " 3-4, "  
 " 2-3, "  
 " 1-2, "  
 " 2-3, "  
 " 3-4, "  
 " 1-4, "  
 " 1-2, "  
 " 3-4, 6 times

### MONK'S BELT



To put Monk's Belt pattern on the #600 Structo loom draw in the first three threads, 2, 3 4, then draw in sixteen complete repeats of the draft then from the beginning to thread #10

Heddles 150 on each harness

# WEAVING DIRECTIONS

Plain or "tabby" weave 1-3,  
and 2-4

## Border A

Weave with a tabby

Levers 1-2, twice

" 3-4, "  
" 1-2, "

Border B (the pattern as  
drawn in)

Weave with a tabby

Levers 1-2, twice

" 3-4, "  
" 1-2, "

" 3-4, "  
" 1-2, "

X →

Levers 3-4, 6 times

" 1-2, 6 "

" 3-4, twice

" 1-2, 6 times

" 3-4, 6 "

Repeat to X For an all-  
over pattern repeat to the end

Border C, like A reversed

## Border D

Weave with a tabby

Levers 3-4, 6 times

" 1-2, twice

" 3-4, "

" 1-2, "

" 3-4, "

" 1-2, "

" 3-4, 6 times

## Border E

Weave with a tabby

Levers 1-2, 6 times

" 3-4, 6 "

" 1-2, 6 "

## Border F

Levers 1-2, 6 times

" 3-4, 6 "

" 1-2, twice

" 3-4, 6 times

" 1-2, 6 "

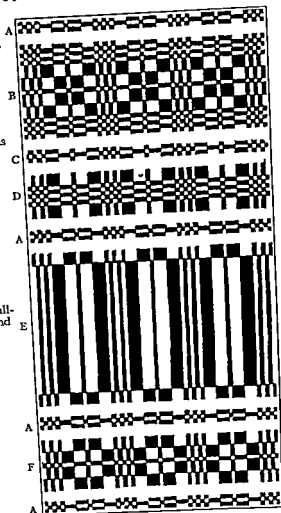


Figure 73 Monk's Belt Pattern

This is a famous Scandinavian and Germanic pattern—the foundation of much European weaving

For a heavy border effect it may be woven in two or more colors on opposites For instance, weave border A as follows

Levers 1-2, once, dark color,	levers 3-4 once, light color	Repeat
Levers 3-4, once, dark color	levers 1-2, once, light color	Repeat
Levers 1-2, once, dark color,	levers 3-4 once, light color	Repeat

For narrow borders woven in this manner the tabby may be omitted. But for broad borders it is advisable to weave a tabby shot after each two or four pattern shots.

## DIAMOND

To put the Diamond pattern on the 4600 Structo loom draw in four selvage threads as indicated, then 29 repeats of the pattern. End as shown on the draft.

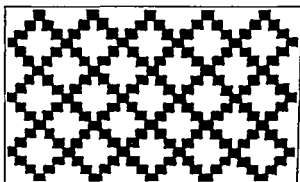


Figure 74 Diamond Pattern A

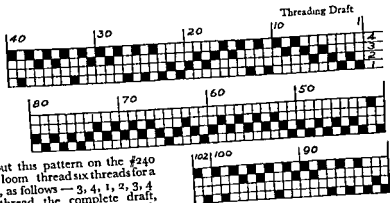
Pattern A. Heddles on harness 1, 122 on harness 2, 150, on harness 3, 178, on harness 4, 150.

Pattern B. Draw in two repeats of the selvage then twenty-two repeats of the pattern. End as indicated. Repeat selvage. Heddles on harnesses 1 and 2, 162, on harnesses 3 and 4, 153.

Pattern C. Draw in two threads 3, 4 then selvage as indicated then eighteen repeats of the pattern. End as shown on the draft. Heddles on harness 1, 150, on harness 2, 186, on harness 3, 150, on harness 4, 114.



# LOVERS' KNOT AND WHIG ROSE OR METHODIST WHEEL



To put this pattern on the #240 Structoloom thread six threads for a selvage, as follows — 3, 4, 1, 2, 3, 4. Then thread the complete draft, twice. Thread the first 23 threads of the draft. Thread a selvage as follows — 4, 3, 2, 1, 4, 3, 2.

Heddles on harness 1, 64, on harness 2, 61, on harness 3, 56, on harness 4, 59.

## WEAVING DIRECTIONS

### "Lovers' Knot"

Plain weave 1-3 and 2-4

Lovers 3-4, 3 times

" 1-4, 3 "

" 1-2, 3 "

" 2-3, 4 "

" 1-2, 3 "

" 1-4, 3 "

" 3-4, 3 "

" 2-3, 5 "

" 1-2, 4 "

" 2-3, 2 "

" 1-2, 4 "

" 2-3, 5 "

" 1-4, 8 "

" 3-4, 2 "

" 1-4, 2 "

" 3-4, 2 "

" 1-4, 8 "

" 3-4, 9 "

" 2-3, 5 "

" 1-2, 4 "

" 2-3, 2 "

" 1-2, 4 "

" 2-3, 5 "

Repeat from the beginning  
Weave these patterns with a tabby

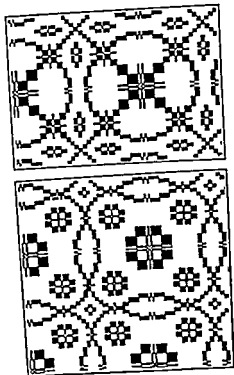


Figure 75 Lovers' Knot and Whig Rose or Methodist Wheel Patterns

## "Whig Rose"

Levers 1-4, 3 times

"	3-4, 3	"
"	2-3, 3	"
"	1-2, 4	"
"	2-3, 3	"
"	3-4, 3	"
"	1-4, 3	"
"	1-2, 5	"
"	2-3, 4	"
"	1-2, 2	"
"	2-3, 4	"
"	1-2, 5	"

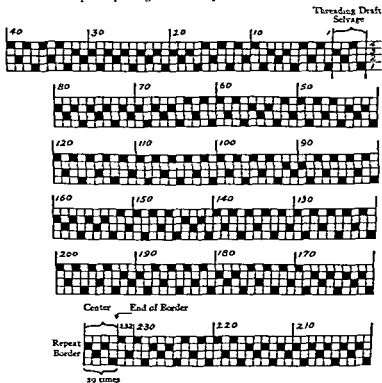
Levers 1-4, 9 times

"	3-4, 8	"
"	1-4, 2	"
"	3-4, 2	"
"	1-4, 2	"
"	3-4, 8	"
"	1-4, 9	"
"	1-2, 5	"
"	2-3, 4	"
"	1-2, 2	"
"	2-3, 4	"
"	1-2, 5	"

Repeat from the beginning

## SUMMER AND WINTER WEAVE

Specially Designed for the 600 Structo Loom





Selvage as written	4 threads
Begin at thread 137 of the draft, to the end	96 "
Repeat the center unit 93 times	392 "
Begin at 137, to the end	96 "
End 1, 3	2 "
	<hr/> 590 "

Or thread border as written and repeat the four thread unit for the center all across the rest of the threads Weave two strips and sew together

For an all over effect proceed as follows

The selvage as written twice	8 threads
Then 1, 4, 2, 4 1, 3 2, 3	8 "
Then the first 92 threads of the draft 6 times	552 "
Then 1, 4, 2, 4, 1, 3, 2 3 1, 4 2, 4	12 "
Selvage 1, 3 2, 4 1, 3, 2, 4 1, 3	10 "
	<hr/> 590 "

To weave a plain stripe all across the loom weave Lever 2, alone, once, lever 1, alone once, and repeat as desired



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